

# Appendix

## Development of Performance Measures for the EMSC Program

### Detail Sheet for Performance Measure #66b

<b>PERFORMANCE MEASURE #66b</b>	The percentage of pre-hospital provider agencies in the State/Territory that have the essential pediatric equipment and supplies, as outlined in the American Academy of Pediatrics (AAP)/ American College of Emergency Physicians (ACEP) Joint Guidelines for Basic Life Support (BLS) providers and Advanced Life Support (ALS) ambulances.
<b>GOAL</b>	<p>By 2006, 20% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p>By 2007, 25% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p>By 2008, 40% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p>By 2009, 45% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p>By 2010, 50% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p>By 2011, 90% of pre-hospital provider agencies in the State/Territory will have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p>
<b>MEASURE</b>	The percentage of pre-hospital provider agencies in the State/Territory that have the essential pediatric equipment and supplies, as outlined in the American Academy of Pediatrics (AAP)/ American College of Emergency Physicians (ACEP) Joint Guidelines for Basic Life Support (BLS) providers and Advanced Life Support (ALS) ambulances.
<b>DEFINITION</b>	<p><b>Numerator:</b> The number of licensed/certified/designated pre-hospital provider agencies in the State/Territory that have the essential pediatric equipment and supplies as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.</p> <p><b>Denominator:</b> The total number of licensed/certified/designated pre-hospital provider agencies in the State/Territory.</p>

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**Definition of Terms:**

***Pre-hospital provider agencies***

Licensed/certified/designated agencies with the primary responsibility of delivering care to pediatric patients during an emergency and transporting them to the hospital; unlicensed agencies are excluded.

***Essential***

The item is necessary and should be carried by an ambulance.<sup>4</sup>

***Pediatric***

Persons up to 18 years old.

***AAP/ACEP Joint Guidelines***

Guidelines developed jointly by AAP and ACEP include a list of equipment and supplies that should be stocked on Basic and Advanced Life Support ambulances to effectively provide pediatric patient care. See attached **Data Collection Form #1** for the list of essential pediatric equipment and supplies for BLS and ALS ambulances.

***BLS ambulances***

Ambulance in which BLS and life sustaining interventions are performed while transporting a patient to a hospital.

***ALS ambulances***

Ambulance in which advanced life saving interventions, such as administering certain life-saving medications and performing advanced monitoring of heart rhythms and advanced procedures to open and manage a patient's airway, are performed while transporting a patient to a hospital. ALS ambulances include intermediate level providers.

**EMSC STRATEGIC OBJECTIVE**

**Related to Strategic Objective 1:** Include pediatric issues in all aspects of clinical care.

**DATA SOURCE(S)**

**Data Sources:**

- Ambulance inspection reports
- Surveys of pre-hospital provider agencies

**IMPLEMENTATION PROCESS**

**Process to Collect Data For This Measure:**

A process for data collection and analysis, as well as examples of supporting documentation are provided below under each data source.

1. **Ambulance Inspection Reports:** As part of licensing vehicles, your State/Territory EMS system may conduct on-site inspections to check availability of essential *pediatric* equipment and supplies on ALS and BLS ambulances. This is especially the case for those States/ Territories with mandates for essential pediatric equipment and supplies in the EMS Rules

<sup>4</sup> Siedel et al. Committee on Ambulance, Equipment, and Supplies. National Emergency Medical Services for Children Resource Alliance. (1996). Guidelines for pediatric equipment and supplies for Basic and Advanced Life Support Ambulances. *Annals of Emergency Medicine*, 28(6), 699-701.

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and Regulations. Inspections may occur annually and/or when complaints are received.

- Coordinate with either State/Territory (State/Territory EMS Office, State/Territory Department of Health), Regional, or County-level ambulance inspectors to ensure the inspector's list of essential equipment and supplies for BLS and ALS ambulances matches the list of essential *pediatric* equipment and supplies outlined in the AAP/ACEP Guidelines (see attached **Data Collection Form #1** for the list).
  - If the lists do not match, work closely with the agency responsible for inspections to include equipment and supplies specified in the AAP/ACEP guidelines in the ambulance inspection checklist or form.
  - If you have access to ambulance inspection data, extract results of the annual ambulance inspections (i.e., percentage of BLS and ALS ambulances licensed who passed the inspection) for each pre-hospital provider agency directly from an electronic centralized database (if available in your State/Territory) or manually from hardcopies of the ambulance inspection reports or checklists.
  - If you do not have access to ambulance inspection data, request each local pre-hospital provider agency to calculate the percentage of ALS and BLS ambulances that fall under their jurisdiction who were licensed and passed the inspection. Each pre-hospital provider agency would subsequently report this percentage to the State/Territory EMSC Program (see attached **Data Collection Form #2**).
  - Once data from the pre-hospital provider agencies are gathered, aggregate the data from the pre-hospital provider agency level to the State/Territory level using the attached **Data Collection Form #3** to calculate the percentage of pre-hospital provider agencies in the State/Territory that have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.
  - *Supporting documentation* for the measure may include: 1) attached Data Collection Forms #2 and #3, and/or 2) copies of State EMS Rules and Regulations with requirements for essential equipment and supplies for ALS and BLS ambulances (if essential equipment/ supplies are mandated within the EMS rules), and/or 3) copies of local (e.g., EMS Resource Hospitals) vehicle licensing criteria with requirements for essential equipment and supplies for ALS and BLS ambulances.
2. **Surveys of Pre-hospital Provider Agencies:** For states that do not have ambulance inspections, surveys of pre-hospital provider agencies are another potential data

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source. The survey of pre-hospital provider agencies would ask about the availability of essential equipment and supplies in their BLS and ALS ambulances.

- If a survey of pre-hospital provider agencies currently exists, consider leveraging this survey by adding a question related to the availability of essential pediatric equipment and supplies on ALS and BLS ambulances.
- If a survey does *not* currently exist, develop a survey tool that asks about the availability of essential equipment and supplies in licensed BLS and ALS ambulances. Contact NEDARC if you require technical assistance.
- Administer the survey either on-line, electronically, or by mail.
- Collect the survey results; follow-up may be necessary to remind agencies to complete the survey or to get clarification on responses.
- Calculate the percentage of pre-hospital provider agencies in the State/Territory that have the essential pediatric equipment and supplies, as outlined in the AAP/ACEP Joint Guidelines for BLS and ALS ambulances.
- *Supporting documentation* for the measure may include: 1) copies of the equipment/supply lists from the pre-hospital provider agencies, and/or 2) copies of State EMS Rules and Regulations with requirements for essential equipment and supplies for ALS and BLS ambulances (if essential equipment/ supplies are mandated within the EMS rules), and/or 3) copies of local (e.g., EMS Resource Hospitals) vehicle licensing criteria with requirements for essential equipment and supplies for ALS and BLS ambulances.

#### IMPLEMENTATION CONSIDERATIONS

##### *Overall Considerations*

- The BLS and especially the ALS equipment lists may vary within your State/Territory. To overcome this challenge, each State/Territory EMSC Program should coordinate with the State/Territory EMS Office to ensure that all the local EMS systems in their State/Territory follow the same AAP/ACEP equipment and supply guidelines.
- AAP/ACEP might release updates to the lists, which would require States/Territories to update their list accordingly. To be compliant with the updates, States/Territories may have to make formal changes to the EMS Rules and Regulations and/or purchase new essential pediatric equipment or supplies for BLS and ALS ambulances. In these instances, HRSA will allow each State/Territory a grace period to become compliant with the revised AAP/ACEP Guidelines.
- To supplement the data sources stated above (i.e., ambulance inspections and surveys), consider leveraging existing EMS quality improvement (QI) activities to

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identify those ALS and BLS ambulances that are non-compliant with the AAP/ACEP Guidelines. QI mechanisms typically involve reviewing case reviews of licensed providers in which adverse events occurred or complaints were received for evidence of non-compliance with national guidelines for essential pediatric equipment and supplies. QI data may include: 1) notes written by or interviews with providers (e.g., ER physician, nurse, paramedic) indicating that inappropriate equipment or supplies were used to care for a child or 2) results from random, unannounced vehicle inspections that checked for absence of essential equipment and supplies in response to a complaint.

#### *Ambulance Inspection Considerations*

- In some States/Territories, information from ambulance inspections may not be shared with the EMSC Program due to the absence of a relationship between the EMSC Program and the State/Territory EMS Program and/or local, county inspectors. If this is the case in your State/Territory, your EMSC Program should work to establish a relationship with the State/Territory EMS Program or County in order to comply with gathering data for this measure.
- Before and during ambulance inspections, pediatric equipment and supplies are sometimes moved from one ambulance to the next creating the impression that each ambulance has its own set of equipment and supplies during the inspection. In these instances, the ambulances will pass the inspection when in fact they do not have the appropriate pediatric equipment and supplies. To overcome this challenge, EMS ambulance inspectors may consider conducting random, unannounced vehicle inspections.
- In some States/Territories, data from ambulance inspections are not placed into an electronic database. Thus, there is no ability to access this information in an aggregated fashion. As stated in the data collection and analysis section above, until an electronic database is created, State/Territory EMSC Programs should coordinate with their local pre-hospital provider agencies to gather hardcopies of the ambulance inspection results.

#### *Pre-Hospital Provider Agency Survey Considerations*

- Availability of data for this measure is dependent upon the return rate of the surveys. To maximize survey response rates in your State/Territory, consider the following strategies: 1) offer electronic, web-based and/or paper versions of the survey so that pre-hospital provider agencies can complete the version that is most convenient for them; 2) contact pre-hospital provider agencies who have not responded to the survey within a designated period of time by phone or e-mail; and 3) provide respondents with the survey results so they can

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see how their data were used; this may encourage them to continue to submit data in the future.

- A potential downside associated with conducting a survey is that it captures self-report data. To reduce self-report bias, consider the following strategies: 1) request supporting documentation or evidence that equipment and supplies are truly available on the ALS and BLS vehicles (e.g., equipment lists) or 2) conduct random, unannounced site visits to a representative sample of pre-hospital provider agencies to check presence of essential pediatric equipment and supplies on the vehicles.

**SIGNIFICANCE**

Pre-hospital providers must have the appropriate pediatric equipment and supplies to care for ill and injured children in order to achieve optimal pediatric outcomes. Consequently, two national organizations (AAP and ACEP) have developed essential equipment and supply lists and guidelines for pre-hospital providers based on current evidence and expert opinion. This measure is an important indicator of pre-hospital provider preparedness to care for children.

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**Data Collection Form #1 for Performance Measure #66b**

**Checklist Of Essential Pediatric Equipment And Supplies**  
**For Pre-Hospital Provider Agencies And/Or Ambulance Inspectors**

BLS Essential Equipment and Supplies <sup>5</sup>	Equipment/Supply Stocked in BLS Ambulance	
	Yes	No
Oropharyngeal airways: infant, child, adult (sizes 00-5)		
Self-inflating resuscitation bag: child and adult sizes*		
Masks for big-valve-mask device: infant, child, and adult sizes		
Oxygen masks: infant, child, and adult sizes		
Non-rebreathing mask: pediatric and adult sizes		
Stethoscope		
Backboard		
Cervical immobilization device		
Blood pressure cuff: infant, child, and adult sizes		
Portable suction unit with a regulator		
Suction catheters: tonsil-tip and 6F-14F		
Extremity splints: pediatric sizes		
Bulb Syringe		
Obstetric pack		
Thermal blanket <sup>§</sup>		
Water-Soluble lubricant		

\* A self-inflating resuscitation bag should be self refilling, should have an oxygen reservoir and should not have a pop-off valve. A child bag has a reservoir of 450 mL, whereas an adult bag has a reservoir of at least 1,000 mL.

§ A thermal blanket may help minimize heat loss. Hypothermia will complicate many illnesses and injuries, particularly in infants and young children. The type of material used will depend on local preference, protocols, and procedures but may include Mylar, standard blankets, or aluminum foil for small infants.

Please indicate whether the BLS ambulance passed the inspection (i.e., had all of the essential equipment and supplies outlined in the AAP/ ACEP Guidelines available in their vehicles). ☐ YES ☐ NO

<sup>5</sup> Siedel et al. Committee on Ambulance, Equipment, and Supplies. National Emergency Medical Services for Children Resource Alliance. (1996). Guidelines for pediatric equipment and supplies for Basic and Advanced Life Support Ambulances. *Annals of Emergency Medicine*, 28(6), 699-701.

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ALS Essential Equipment and Supplies <sup>6</sup>	Equipment/Supply Stocked in ALS Ambulance	
	Yes	No
Oropharyngeal airways: infant, child, adult (sizes 00-5)		
Self-inflating resuscitation bag: child and adult sizes*		
Masks for big-valve-mask device: infant, child, and adult sizes		
Oxygen masks: infant, child, and adult sizes		
Non re-breathing mask: pediatric and adult sizes		
Stethoscope		
Backboard		
Cervical immobilization device		
Blood pressure cuff: infant, child, and adult sizes		
Portable suction unit with a regulator		
Suction catheters: tonsil-tip and 6F-14F		
Extremity splints: pediatric sizes		
Bulb Syringe		
Obstetric pack		
Thermal blanket <sup>§</sup>		
Water-Soluble lubricant		
Transport Monitor		
Defibrillator with adult and pediatric paddles		
Monitoring electrodes: pediatric sizes		
Laryngoscope with straight blades 0-2, curved blades 2-4		
Endotracheal tube stylets: pediatric and adult sizes		
Endotracheal tubes: uncuffed sizes 2.5-6.0, cuffed sizes 6.0-8.0		
Magill forceps: pediatric and adult		
Nasogastric tubes: 8F-16F		
Nebulizer		
IV catheters: 16-24 gauge		
Intraosseous needles		
Length/weight-based drug dose chart or tape		
Needles: 20-25 gauge		
Resuscitation drugs and IV fluids that meet the local standards of practice		

\* A self-inflating resuscitation bag should be self refilling, should have an oxygen reservoir and should not have a pop-off valve. A child bag has a reservoir of 450 mL, whereas an adult bag has a reservoir of at least 1,000 mL

§ A thermal blanket may help minimize heat loss. Hypothermia will complicate many illnesses and injuries, particularly in infants and young children. The type of material used will depend on local preference, protocols, and procedures but may include Mylar, standard blankets, or aluminum foil for small infants.

Please indicate whether the ALS ambulance passed the inspection (i.e., had all of the essential equipment and supplies outlined in the AAP/ ACEP Guidelines available in their vehicles). ☐ YES ☐ NO

<sup>6</sup> Ibid





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**Data Collection Form #3 for Performance Measure #66b**

**Instructions: For Use By State/Territory EMSC or EMS Office to Aggregate Data from  
Pre-Hospital Provider Agency Level to State/Territory Level**

Please indicate whether each pre-hospital provider agency in your State/Territory met the requirement of the measure.

(A)	(B)	(C)	(D)
Name of Pre-hospital Agency in the State or Territory	Percentage of ALS and BLS ambulances that had all the essential equipment/supplies outlined in the AAP/ACEP Joint Guidelines <sup>1</sup>	Met <sup>2</sup> ✓	Not Met <sup>3</sup> ✓
<b>Total (A) =</b>		<b>Total (C) =</b>	<b>Total (D) =</b>
Percentage of pre-hospital provider agencies in the State or Territory that had all of the essential equipment and supplies for BLS and ALS ambulances. (C/A x 100) = ____%			

<sup>1</sup> Refer to *Data Collection Form #2* to get the percentage of ALS and BLS ambulances that had all the essential equipment/supplies outlined in the AAP/ACEP Guidelines.

<sup>2</sup> Met requirement is defined as: 100% of the ALS and BLS ambulances that fall under the jurisdiction of this pre-hospital provider agency have the essential pediatric equipment and supplies for BLS and ALS ambulances, as outlined in the AAP/ACEP Joint Guidelines.

<sup>3</sup> Not met requirement is defined as: <100% of the ALS and BLS ambulances that fall under the jurisdiction of this pre-hospital provider agency have the essential pediatric equipment and supplies for BLS and ALS ambulances, as outlined in the AAP/ACEP Joint Guidelines.

*Note:* Attach supporting documentation for the measure to your EMSC continuation application.

Comments:

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